

5395  
1.941  
Copy 2

DUPLICATE

PROPERTY OF THE LIBRARY  
UNIVERSITY OF COLORADO

JUN 7 1942

**THIRTY-FIFTH ANNUAL REPORT**  
of the  
**SOUTH CAROLINA**  
**STATE BOARD OF**  
**FISHERIES**

**YEAR ENDING JUNE 30, 1941**

to the  
**GOVERNOR AND**  
**GENERAL ASSEMBLY**



S. C. STATE LIBRARY  
NOV 07 1994  
STATE DOCUMENTS

**1941**

PRINTED UNDER THE DIRECTION OF THE  
JOINT COMMITTEE ON PRINTING  
GENERAL ASSEMBLY OF SOUTH CAROLINA

50-1  
1:941  
**THIRTY-FIFTH ANNUAL REPORT**

of the

**SOUTH CAROLINA  
STATE BOARD OF  
FISHERIES**

**YEAR ENDING JUNE 30, 1941**

to the

**GOVERNOR AND  
GENERAL ASSEMBLY**



**1941**

**PRINTED UNDER THE DIRECTION OF THE  
JOINT COMMITTEE ON PRINTING  
GENERAL ASSEMBLY OF SOUTH CAROLINA**



## PERSONNEL

J. M. Witsell, *Chairman* - - - - - Walterboro, S. C.  
W. B. Ryan, Jr., M. D. - - - - - Beaufort, S. C.  
W. P. Lewis - - - - - Aynor, S. C.  
D. H. Gadsden, *Secretary* - - - - - Charleston, S. C.

OFFICES: 93 BROAD STREET, CHARLESTON, S. C.

## INSPECTORS

Chief Inspector: Alonzo B. Seabrook, North Charleston, S. C.  
District No. 1: J. Geo. Bailey - - - - - Ridgeland, S. C.  
District No. 2: W. A. Tuten - - - - - Walterboro, S. S.  
District No. 3: E. M. Bailey - - - - - Edisto Island, S. C.  
District No. 4: J. F. Bellune - - - - - Georgetown, S. C.  
District No. 5: L. F. Bryan - - - - - Conway, S. C.  
District No. 6: S. C. Taylor - - - - - Ridgeland, S. C.  
District No. 7: J. Leroy Butler, Jr. - - - - - Beaufort, S. C.  
District No. 8: S. J. Thomas - - - - - Yemassee, S. C.  
District No. 9: W. L. Harbeson - - - - - Harleyville, S. C.  
District No. 10: D. M. Evans - - - - - New Zion, S. C.



## SUBJECT NUMBER ONE

# REPORT

---

*To His Excellency, the Governor and the Honorable General Assembly of South Carolina, Session 1942:*

The South Carolina State Board of Fisheries herewith respectfully submits its thirty-fifth annual report to you.

This Board feeling that you desire to know its value and the industry's value to the people of South Carolina, the Chairman of the State Board of Fisheries has gotten up the following report which will show you the number of pounds of fish and shellfish, and their value, also, the number of people employed in the industry and the amount invested in plants and equipment. Of course, these figures are derived from the records covering a period of ten years and getting an average of each year considering that period of years' approximate volume in pounds, and value in dollars—approximate amount paid to fishermen—approximate amount paid in wages to other employees each year for a period of the last ten years, also, a total value at wholesale price and approximate value at retail price.

I feel sure that I would be safe in saying that 75% of our products are shipped out of the State, and, of course, that means outside money coming into South Carolina. In addition to the figures that we will cite you, we have one plant in the State that manufactures chicken scratch and commercial lime, in large quantities, from oyster shell. This plant employs around twenty to thirty people, and has a payroll of around \$200.00 to \$225.00 per week. It manufactures from 200 to 250 tons of commercial lime and chicken scratch per month.

We have three crab meat plants in full operation. I would say that these plants employ approximately 800 people, which would necessarily create a large payroll. They are putting up between eight and ten thousand cases of crab meat each year, the value of same running around \$90,000.00 per year. Ninety-five per cent of this product is shipped out of the State.

We have a large number of individual fishermen of whom we have no definite record, but in my opinion they would number about five hundred yearly. They fish for themselves and sell

52.  
659.2

508

1941

their catch. This individual catch, would, probably, amount to \$25,000.00 to \$30,000.00 per year. These special items that I have cited you are not included in the figures that follow, viz:

**VOLUME AND VALUE OF MARINE PRODUCTS TAKEN IN  
SOUTH CAROLINA, INCLUDING NUMBER OF FISHERMEN  
IN THE VARIOUS FISHERIES, AS WELL AS PAYROLLS  
AND AMOUNT INVESTED IN PLANTS AND  
EQUIPMENT**

Principal Species—Fish	Volume In Lbs.	Value In Dollars	No. of Persons Employed In Industry	Amount Invested In Plants and Equipment
Shad .....	59,400	\$12,010	2,926	\$1,250,000.00
Sea Bass .....	111,500	6,265	....	.....
Mullet .....	587,000	22,785	....	.....
Sea Trout .....	83,800	7,709	....	.....
Whiting .....	86,000	2,970	....	.....
Other Fish .....	651,000	28,365	....	.....
<hr/>				
Total All Fish .....	1,578,700	\$80,104	....	.....

**SHELLFISH:**

Shrimp .....	3,722,800	\$111,807	....	.....
Oysters .....	1,761,000	66,703	....	.....
Crabs .....	848,100	15,384	....	.....
<hr/>				
Total All Shellfish .....	6,331,900	\$193,894	....	.....

**GRAND TOTAL**

(All Marine Products) 7,910,600	\$273,998—Paid to Fishermen
	160,608—Wages paid to other employees
<hr/>	

Amount expended ... ..	\$434,606
------------------------	-----------

**TOTAL VALUE OF**

**INDUSTRY (At**

Wholesale) .....	\$651,376
------------------	-----------

You will note that the amounts show money paid to fishermen and wages paid to other employees, which total amounts to more than \$400,000.00 per year. You will see from these figures that



the total value of the industry, at wholesale, would run over \$600,000.00 per year. At retail, including all items, the industry is worth considerably more than \$1,000,000.00 annually paid out for labor, gasoline, food, ice, repairs, etc.

The Board of Fisheries has charge of supervising and checking the products mentioned above. It is their duty to enforce all laws pertaining to commercial fishing in South Carolina. It also issues all leases for oyster bottoms, and sees that the proper amount of shell and seed oysters are planted back on the bottoms, and that they are properly planted under the personal supervision of their inspectors. The Board of Fisheries stand 100% for conservation, and the Chairman of the Board has instructed each inspector to enforce the law in every instance and to show no favoritism. The Board of Fisheries only has the power to enforce the laws enacted by the General Assembly.

We are making certain requests in this report as to laws that we think would be beneficial for the preservation of the industry, and we hope that your Honorable Body will give these requests due consideration.

The personnel of the Board of Fisheries is as follows:

J. M. Witsell, <i>Chairman</i>	- - - - -	Walterboro, S. C.
Dr. W. B. Ryan, Jr., <i>Member</i>	- - - - -	Beaufort, S. C.
W. P. Lewis, <i>Member</i>	- - - - -	Aynor, S. C.
D. H. Gadsden, <i>Secretary</i>	- - - - -	Charleston, S. C.
Alonzo B. Seabrook, <i>Chief Inspector</i>	- -	North Charleston, S. C.

The South Carolina State Board of Fisheries has each year printed in a small book all laws pertaining to the fish and shell-fish industries; copies of which are always available upon request, and are mailed out to many of the operators without cost to them, which gives them the laws pertaining to the work in which they are engaged, and offers them slim excuse ~~for excuse~~ for violating the law through ignorance.

The Chairman of the Board of Fisheries is in the office on Wednesday and Thursday of each week, inspecting reports of the district inspectors, holding hearings, answering correspondence and directing the supervision of the department; in addition, he spends considerable time supervising the general work of the inspectors, and is at all times subject to call.

## SUBJECT NUMBER TWO

### SHAD

In the early history of this country, shad entered almost every coastal river of our Atlantic Coast in large numbers. Statistics of the commercial yields in these earlier years are not available, and, no doubt, if such data was recorded it would not give one an adequate index of abundance, since the exploitation of the fisheries was less intensive than at later dates. During the past half century records are more complete. These indicate that during the past forty years the yields have been constantly downward. Based on partly estimated data the commercial yield on the Atlantic Coast of this country in 1897 exceeded 48,500,000 pounds, while that of 1935 was only 8,200,000 pounds, or approximately one-sixth of the earlier catch. While the decrease of the shad is apparent on the entire Atlantic Coast, the largest decrease was in the following States, Maine, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia and North Carolina.

There are eleven different types of fishing gear used in the capture of shad for commercial use; 98% of the entire catch is made by three of these viz; gill nets, which account for 53% of the shad caught; powered nets, 36% and haul seines, 9%. Shad, like most migratory fish, are rather erratic in their seasonable movements, thus, there may be considerable variation in the dates of their first appearance in each season at any point in their abundance from year to year through the same season in any one body of water, and in their abundance from place to place through their range in any single season.

The shad season begins in South Carolina on January 16th, and closes on March 25th, below the forty mile limit. Above the forty mile limit the season opens on January 16th, and closes on April 30th. In this connection, I would strongly recommend to your Honorable Body that you enact a law opening the shad season in South Carolina on February 1st, and closing the season on March 25th, in all the waters of the State, for the reason that some of our best spawning area is in the territory above the forty mile limit. The month of April is one of the months in which shad spawn heavily. Our rivers are being very much over-fished, and I believe that a law enacted requiring the nets



to be placed four hundred yards apart would reduce the number of fishermen and allow more shad to be produced in our waters.

The theory has been advanced that the shad return to the rivers in which they spawn. The earliest supply of shad comes from the waters of Florida.

Shad are packed in boxes well iced. The trade in shad in certain of our coastal areas ranks rather high during the season in comparison with other seafoods according to the opinions received from wholesale and retail dealers, for instance, the shad ranks one-sixth in total retail sales of seafood in the city of New York during the month of March in a typical year. The practice of dealers in the important primary producing areas, from Delaware, south to Florida, of shipping their shad to inland and northern markets shortly after their capture is well shown by the fact that the freezing of shad in this region is negligible. The price of fresh shad is affected not only by the variation in the abundance of shad but also by the variation in prices and abundance of other species. If shad were more generally marketed in smaller proportions they would also be placed in a more favorable competitive position with other seafoods.

Shad are usually marketed fresh, although there are quantities of both shad and shad roe marketed frozen and canned. Some shad are marketed smoked and kippered. A few shad have been marketed boned, but very seldom, for the reason that shad put through this process lose very heavily in weight, perhaps, the loss would amount to as much as 48%.

Roe shad usually vary in round weight, not dressed, from four to six pounds, but it is possible that some of them may reach a weight of ten pounds, or more. The weight depends largely upon the state of maturity of the roe in the female shad and on the locality of the capture. Buck shad will probably average in weight from two to three pounds.

I note that in some cities the retail merchants have adopted the policy of cutting the shad in half and selling it when requested to do so by a customer. This policy is also being adopted in the sale of shad roe. I find, from investigation, that the above policy has increased the sale of shad very materially in those cities. It stands to reason that it would increase the sales, as there are many small families that could not consume a whole



shad and yet would be desirous of obtaining as much of it as they needed.

There has been very little difference in the catch of shad in South Carolina during the past five years, but instead of catching fifteen or sixteen thousand shad per season this catch could be built up to between thirty-five and fifty thousand by the passage of conservation measures. In 1939-40 the shad catch amounted to 14,932, while in 1940-41 it amounted to 20,053 white shad.

Shad ranks high among fish in its nutrition value, and it is also a very delicious food.

We tried the running of hatcheries for the purpose of placing more shad in the waters of the State, but found that we were not obtaining desired results, for the toll of the shad was too great considering the amount of fry placed back in the waters.

A survey having been made covering consumers of shad in 342 families in the cities of Washington, D. C., Richmond and New Port News, Va., Rocky Mount, Greensboro and Charlotte, N. C., of these 99% served seafood at their homes during a certain year. 70% served shad at their homes. 47% consumed seafood at public eating houses. 23% consumed shad at public eating houses.

Taking into consideration all of the 342 families surveyed, an average of 57% seafood meals were consumed per family during the year. Of these, 50% were served at home and 7% were eaten at public eating houses.





## SUBJECT NUMBER THREE

### OYSTERS HANDLED COMMERCIALLY

South Carolina is establishing a record on Oyster Cultivation, and now plants more oyster shell than any other State in the United States, with the possible exception of the great oyster producing State of Maryland.

This year, 1941, our oyster industry planted on South Carolina shores and bottoms, under the jurisdiction of the State Board of Fisheries, 1,340,000 bushels of oyster shell. One oyster canning concern alone planted 250,000 bushels. This company has planted an average of 275,000 bushels of shell every season (May 10th, to June 28th) for many years.

A comparison with what the other oyster producing states are doing in regard to planting shows South Carolina at the top of the list in number of bushels of oyster shell planted. A list of the oyster shell planted by other states, follows:

Maryland—1,395,000 bushels average annual planting for past five years.

South Carolina—1,340,000 bushels planted in 1941.

North Carolina—15,000 bushels planted in 1940.

Louisiana—125,000 barrels, equals 312,500 bushels planted in 1941.

Mississippi—50,000 barrels, equals 125,000 bushels to be planted in 1941.

Virginia—187,000 bushels planted in 1939.

It will be seen by the above list that South Carolina is taking full advantage of her oyster production. South Carolina has only a limited number of acres or shores and bottoms that are suitable for oyster culture. The cultivation of oysters in this State requires a very thorough knowledge of the shores and bottoms and water conditions. For successful cultivation, there are only small areas where all conditions are right and on which oysters can be produced successfully for commercial purposes.

Our State has the great advantage of very rapid growth. Oysters are grown to commercial size in eighteen to twenty months, and likewise reach full maturity in twenty-eight to thirty-six months, and from then on deteriorate rapidly. To take full advantage of these conditions, it is found that successful

growing of oysters requires the complete harvesting of all planted areas at maturity, and heavy planting of shell, 1,000 to 1,500 bushels per acre, (according to the texture of the shores or bottoms) immediately following. This planting of shell has to be done between May 10th, and June 28th, when the oyster spat is setting, otherwise, such planting will not prove successful.

The planting of large quantities of oyster shell in this short period is quite a problem and requires every boat and oyster-man available during the planting season. Even a few days lost means quite a cut in the production two years later. Great care has to be taken not to plant the shell too low or too high on the banks, and for proper planting the banks should be marked with stakes by experienced oyster-men before planting.

Quite a number of shores and bottoms in this State have been destroyed by the deep dredging of the Intra-coastal Waterway, and it is much to the credit of our oyster industry and the State Board of Fisheries that the South Carolina planting has been kept up and increased.

## **SUBJECT NUMBER FOUR**

### **EXPERIMENTAL OYSTER FARMING**

#### **Report, South Carolina Oyster Investigation, July, 1941**

During the month, certain surveys were made in the various creeks of Beaufort County where experimental oyster culture is being carried on to determine the abundance of setting available for experimental use. This work is carried on by the United States Bureau of Fisheries in cooperation with the South Carolina State Board of Fisheries. Briefly stated, the results are as follows: Huspah Creek, a very light set has been obtained on brush planted during September, 1940. These spat apparently attached during the early part of June, and no setting having taken place in the past few weeks on account of heavy rains.

The results are of considerable importance in showing that brush can be used satisfactorily as clutch for more than one year. This information is corroborated by set on brush in Tom Fripp Creek. In Horsepen Creek an extra heavy set has been obtained between tide lines on shell planted in 1939-1940 and 1941. Where setting is not sufficient to entirely cover the shell they remain suitable for use as clutch.



During the spring of 1941 several tons of conglomerate rock from dredging operations in the intracoastal water way were planted between tide lines to determine their value as clutch, since the only cost for the material is that of transportation. A heavy set has been obtained on this rock wherever setting did not take place, and its use can be recommended whenever sufficient quantities are available.

In Tom Fripp Creek a heavy set has been obtained on both shell and brush planted between the tide lines last year. In general, the setting was much heavier than was observed in 1939 or 1940.

The South Carolina State Board of Fisheries extended permission to members of the staff of the Academy of Natural Sciences of Philadelphia for the purpose of collecting samples of fowling organisms.

## SUBJECT NUMBER FIVE

### CLAMS

The clam industry in South Carolina has always been very small. There is only a very small territory in this State suitable for clam culture, and that territory is mainly in Georgetown.

There does not seem to be a great local demand for clams on a wholesale basis in this State. The clams here are practically caught by the individual fishermen who consist, mostly, of negroes who sell their individual catch to the consumers, and in that way the State Board of Fisheries has no way by which it can ascertain the amount of clams gotten from our waters.

Clams are very nourishing and very digestible when prepared properly.

The August storm of last year damaged the clam beds considerably by washing the mud over them, but this condition is now being cleared away, and we are of the opinion that our supply of clams will be increased very materially in the course of time.

The State Board of Fisheries is using what means it has to conserve these bottoms, and we hope that in the near future we will be making shipments in considerable quantity out of the State. At present, clams are supplying the local needs and are furnishing employment to local fishermen in a minor degree.

In the older days, some of the old settlers fed clam juice to their babies as a substitute for milk, as milk was not obtainable in many areas, and the clam juice was found to be a very desirable substitute.

## SUBJECT NUMBER SIX

### TERRAPIN

In 1933 the terrapin was very scarce in the waters of South Carolina. During that year the State Board of Fisheries took the matter up with the United States Bureau of Fisheries, and through their hearty cooperation we were able to obtain from them sufficient terrapin each year to stock our streams. The number ranges from 1,000 to 3,000 terrapin each year which the Board of Fisheries places in the different marshes and creeks of the waters of South Carolina. We can state, with a great deal of pleasure, that from the above procedure the waters of the State are now well stocked with terrapin, and the increase of the sales has been quite noticeable each year. The price has also improved.

We received from the U. S. Fisheries, located at Beaufort, N. C., 3,000 terrapin this year which were distributed as follows:

2,000 at Cape Romain Bird Refuge, Charleston County.

500 in Awendaw Creek, Charleston County.

250 up Ashley River, Charleston County.

250 in Burton's Creek, Charleston County.

We have eight terrapin farms operating in the State this year. Last year there were only six which shows an increase. These farms purchased from the fishermen 4,230 terrapin this year. The number purchased last year from the fishermen was 2,778. This shows a decided increase. This part of the industry has been increasing steadily each year since the year of 1933, at which time the State Board of Fisheries started restocking the streams.

Unless every effort is used to restock our streams, and all measures possible are used for conservation you will find that the State and her citizens will pay dearly for the neglect.



## SUBJECT NUMBER SEVEN

### STURGEON

Sturgeon fish are increasing in our waters materially. In 1937 the General Assembly passed an act giving the State Board of Fisheries authority to close the season on sturgeon fishing. The season was opened again in 1939, and we credit the increase in these fish to the act passed by the General Assembly.

We have twenty-five fishermen catching sturgeon this season, and during our fiscal year ending June 30th, 1941, these fishermen have caught 785 fish amounting to 34,588 pounds. The yield of caviar from these sturgeon amounted to 61½ pounds.

There have been some extremely large sturgeon caught in our waters this year, and the price being paid for sturgeon and caviar during the season has been very good, which is most encouraging to our fishermen.

We have four buyers and shippers of sturgeon fish, and they are located as follows; one at Pawley's Island and three at Georgetown.

Sturgeon spend a large part of their lives in the seas and bays, but they move up into the fresh waters to spawn.

Sturgeon produce large quantities of eggs; they often run as much as three million to the fish. These fish are widely distributed in the fresh and salt waters in the North Temperate Zone. The air bladder of the sturgeon is made into isinglass.

The only conservation measure that would prove very beneficial to the catch would be the closing of the streams to fishing, but I do not think this step is necessary at the present time, as the fish appear to be getting more numerous each year.

## SUBJECT NUMBER EIGHT

### SHRIMP

The shrimp industry was unfavorably affected, most materially, by the August storm and the extremely cold weather of the previous winter.

Before offering suggestions for the conservation of the shrimp supply of South Carolina, we must define conservation. To us, the word means wide utilization, or obtaining the maximum benefits from the resources without endangering the future sup-

ply. With this understanding of the terms, the situation of the shrimp supply may be presented briefly.

The shrimp population reared in North Carolina, South Carolina, Georgia and Northern Florida can be divided into two groups, viz., Migratory and Non-Migratory.

The individual spawned early in the season composes the migratory, and those spawned later compose the non-migratory group. The non-migratory group winters in the general locality in which it develops. The greater portion of the shrimp reared in North Carolina, South Carolina, Georgia and Northern Florida are migratory, moving south along the coast during the fall, and wintering in central Florida waters. Normally, there is a return movement of these migratory shrimp in the spring. However, for the past several years the fishing of these migrant shrimp in Georgia and Florida has been so intense that very few of them survive to make the northward trip.

Because of the migratory nature of shrimp, control of the fishing cooperatively between the States of North Carolina, South Carolina, Georgia and Florida is needed. True conservation of the Atlantic shrimp supply can not be obtained until all of the States involved enter into a joint program for the mutual benefit of all. As far as South Carolina is concerned, the present shrimp fishing regulations appear to be much more stringent than those existing in the adjoining States.

The present intensive fishing along the Atlantic Coast does not appear to be damaging the spawning stock, hence, more drastic regulations in South Carolina would merely further hamper a justifiable industry without materially aiding the cause of conservation. Additional restrictions of fishing activities in South Carolina during the fall would only lessen the South Carolina catch, and, probably, increase the Georgia and Florida catch by a like amount, therefore, as I have previously stated, the greatest help to this industry would be for North Carolina, South Carolina, Georgia and Florida to get together and pass similar laws.

The added increment in weight due to the increase in size of the migratory shrimp is but slight, and, probably, would be offset by the loss of natural mortality. From the same evidence, it appears that more restrictions on the fall fishing in South Carolina would not work against the rules of conservation, al-



though, no particular benefit would be derived. On the other hand, South Carolina herself would suffer material loss without aiding the general cause of conservation. It is preferable to restrict the winter and summer fishing in inside waters when the shrimp are small and unmarketable, rather than restrict the spring fishing when they are larger and of commercial value.

Under conditions now prevailing in the South Atlantic shrimp fishery, the best conservation measures are those that provide for the protection of small size shrimp that are unmarketable. This can be accomplished by the closure of certain areas when frequented by small shrimp. We believe the regulations given below are necessary for this in order that South Carolina might enjoy to a fuller advantage her natural supply of shrimp. We suggest the following:

1. The creeks and rivers be closed to shrimp fishing the entire year, as they are important nursery grounds for small shrimp.
2. The bays and sounds be opened to shrimp trawling the entire year, except, from July 15th, to August 31st, and from December 15th, to March 14th, when they should be closed, for, during these periods, the bays and sounds are important for harboring small shrimp.

## SUBJECT NUMBER NINE

### LEASING AND CULTIVATING OYSTER BOTTOMS

Oysters being one of our most important shellfish products, it is quite necessary that it be protected in every way possible.

The State Board of Fisheries has now leased to the operators and individuals 4,685.54 acres, for which the State receives a revenue of \$4,685.54 yearly.

This department supervises and sees that large quantities of shell are properly planted on these bottoms each year. It is extremely essential that the proper amount of shell be planted yearly on oyster lands, and it is also necessary that a certain amount of oysters be removed each year in case the oysters are too thick, otherwise, they will be choked out, and if the shell is not planted these oyster areas would become depleted.

The oyster leases are drawn for a period of five years, and they are subject to renewal for an additional period of five years at the same rate of rental, which is \$1.00 per acre per year.

We are of the opinion that there are a number of acres of natural oyster bottoms that could be developed so as to produce a desirable oyster. This could be found out by an investigation made by the Government experts and a survey of the land. This would cost some money, but we believe that if the investment was made it would pay back to the citizens of the State many times the amount invested.

We believe that if the General Assembly would pass a law prohibiting the removal of any oyster shell and oyster shell products from the State it would help very materially in building up our oysters. The shells are getting scarce in our State, and in some States, I understand, there is not enough shell left to plant the oyster bottoms properly.

## SUBJECT NUMBER TEN

### POLLUTION

The pollution of South Carolina Waters is as follows: Those in Beaufort County consist of parts of Fields Cut, Wright River, New River, Walls Cut, Beaufort River and Battery Creek.

In Charleston County, pollution consists of Charleston Harbor and parts of Ashley River, Cooper River and Wando River.

In Georgetown County, pollution affects Winyah Bay and parts of Waccamaw River, Pee Dee River and Sampit River.

These polluted areas are patrolled each month by our inspectors, and reports are made to this office and the United States Government. No oysters are allowed to be removed, except for the planting of oyster beds, and that is done by first obtaining permission from the State Board of Fisheries and the removal of same is supervised by this department.

The pollution is caused by sewage, waste material from pulp mills, fertilizer factories and other poisonous matter getting into the rivers.

We believe that a considerable amount of this pollution could be done away with by the passage of suitable laws and the expenditure of some money.



On June 3rd, 1941, the United States Senate approved the Interior Department's bill and sent it to a conference composed of members of both houses to agree on amendments added by either party. Included is the amendment sponsored by Congressman Mundt for \$35,000.00 given to the Fish and Wild Life Service to make studies and surveys of pollution of streams caused by war defense industries. The officials of the Fish and Wild Life Service said the surveys would be made from two mobile laboratories checking on new pollution areas caused by new munition plants constructed by the Government, by new army camps and naval stations, also, they would survey old areas of pollution to determine whether the situation is aggravated by increased activities of industrial plants, and to determine a practical means by which poisonous acids, which saboteurs could use to injure large populations, can be eliminated. We are in hopes that our polluted areas will derive benefit from this bill.

## **SUBJECT NUMBER ELEVEN**

### **DEVELOPMENT OF CRABS**

The crab industry is growing so rapidly in the State of South Carolina, and the Chairman of the State Board of Fisheries, believing it to be very essential to have an investigation made as to the proper laws and methods of handling crab, took the matter up with Congressman John L. McMillan requesting that he be instrumental in having an appropriation made by the Federal Government for the investigation.

Congressman McMillan was very active in trying to have the investigation made. He took the matter up with the Fish and Wild Life Service and Secretary Ickes, and I hope the necessary legislation will be passed in the near future.

The blue crab is declining in abundance as a result of over-fishing in New England and the Middle Atlantic States. At the present time the supply of crabs has not been endangered in our State, but the establishment of canneries will, in the course of time, deplete the supply unless some conservation measures are adopted, therefore, it is necessary to discover means of protecting the industry in South Carolina, especially, at the present time while many areas may yet be found on which the natural population may be studied. South Carolina is ideally suitable

for carrying on an investigation of crab, for the reason that Cape Romain Refuge would provide an excellent experimental territory.

The cost of an investigation in South Carolina would be less than almost any other section on account of the facilities at Cape Romain Refuge and the cordial relations existing between the State Board of Fisheries, The Federal Wild Life Service and the members of the crab meat industry. Due to the mild climate, investigators could continue their work practically through the entire year.

I understand that Hydrographic data are available as a result of the experimental oyster culture program in Beaufort County.

This fishery is still in its early stage of exploitation in this State, and unless something is done South Carolina will, eventually, not be any different from the heavily populated areas.

That we may expect sometime in the future the draw on the fishery to exceed the rate of its production, important steps should be taken to assemble enough knowledge of the blue crab industry in this State so that adequate measures may be adopted before damage is done.

The production of hard crabs will run approximately 1,500,000 pounds in the year of 1941. The crabs are marketed in two ways; the larger part being sold alive or as fresh crab meat. The other amount being processed and canned by the Blue Channel Corporation of Port Royal. Lupton & Company of Charleston operate a large plant selling fresh crab meat in sizeable quantities.

The crab fishing is done almost exclusively by negroes operating set lines from boats. The catch per man fluctuates widely, from none to in the neighborhood of 800 pounds, but a catch of 400 pounds per man per day is considered the average, except, in the winter the catch would run nearer 200 pounds.

At present there are no State restrictions as to size or season, but there is a law prohibiting the catching of female crabs while spawning.

I recommend that an investigation of this industry be made as soon as possible, for, up to the present there has been no exploitation, and the areas can be found where the natural abundance and rate of production may be studied. Not even such elementary information as to the rate of growth and extent of spawning season is available. The result of an investigation in



South Carolina may be translated into effective conservation measures for the future without materially affecting the present industry.

The crab industry will grow wonderfully within the next few years, and the opportunities for observation and experiment will not be possible to the same extent under changed conditions. Complications attendant upon industrial and city waste are very small in this section.

The State Board of Fisheries is in hopes that the General Assembly will deem it wise to make an appropriation along with the Federal Government to enable this investigation to be made, at which time we hope that we will have certain information by which we can request the General Assembly to pass the desired conservation laws.

## SUBJECT NUMBER TWELVE

### MENHADEN

We have four menhaden boats operating in the waters of South Carolina. These boats are of very large size, and are owned and operated by people from North Carolina.

Years back, South Carolina had one menhaden factory. I understand that it was operated for awhile on a profitable basis, but later on did not do so well and was closed for that reason.

The menhaden caught in our waters are transported to Southport, North Carolina where a factory is located. The fish are manufactured into fertilizer and fish meal. The oil is used in the manufacture of water-proof fabrics, varnish, soap, linoleum, etc.

The stronger that agriculture becomes the more the demand will be for these fish for the purpose of fertilizer.

Menhaden fishing is practiced along the Atlantic Coast. A set is made around the fish when the school is sighted. The school that is conceived may be large or small, and for this reason a few sets may be made or six or eight sets made in order to get a boat load of fish. Occasionally, it is only necessary for two or three sets to secure a load. The catch varies very materially from time to time.

In fishing for menhaden, the small edible fish are not destroyed as is done with a small drift or set net, only menhaden

and its enemies are caught. The number of menhaden fish caught in our waters this season is 10,650,000. These menhaden fishermen paid into the State Treasury \$694.00 even, for licenses during the fiscal year.

## SUBJECT NUMBER THIRTEEN

### ENFORCEMENT OF LAWS AND CONSERVATION

Number of cases made .....	101
Number of convictions .....	57
Number of acquittals .....	2
Number of cases pending .....	27
Number of cases suspended .....	15
Fines collected .....	\$757.00
Confiscated property sold .....	\$ 39.00
Nets on hand .....	57

The inspectors in addition to law enforcement, patrol the polluted areas and make reports relative to same which are sent to the Federal Government each month. This is necessary to keep our seafoods products marketable. They also issue hundreds of applications for licenses to the operators. The inspectors regularly inspect all raw oyster shucking plants and see that they are sanitary and run according to law for the protection of the citizens consuming oysters. They also make regular inspections of all seafood plants and see that the proper amount of impost stamps and tags are placed on all shipments of fishery products where same is required.

The inspectors of this department supervise the planting of all shell and seed oysters, which is very necessary for the development of the oyster bottoms. They see that the shell and seed oysters are properly planted, as to where they are planted and the amount planted in each place, and that the required amount of shell and seed oysters are planted.

This year the Board is exerting every effort for conservation, and required a larger amount of shell or seed oysters to be planted by the operators than has ever been planted before without the help of the Federal Government, and, by doing so, better and more oysters will be produced.

The number of bushels of shell planted this year will run somewhat over 1,340,000 bushels. Last year the plantings of shell amounted to around 817,000 bushels of shell.



This Board is 100% for conservation, and will enforce all laws enacted by the General Assembly of South Carolina pertaining to conservation to the letter of the law. In our recommendations, we will request that more stringent laws be passed as to conservation of our seafood products. During the year just ended this department has destroyed more than 25 nets that were being fished illegally and could not be sold on account of the small mesh.

## SUBJECT NUMBER FOURTEEN

### BOATS

The following is a list of boats owned and operated by the South Carolina State Board of Fisheries for patrol purposes:

One Chris Craft run-about, 27 feet long, 2—140 HP Gray Fire Ball Motor, (Charleston County).

One Mahogany boat, 14 feet long TVT 24 HP Johnson Motor, (Colleton County).

One Cabin Cruiser, 48 feet long, 65 HP Lathrop Engine, (Beaufort County).

Note: This boat is now being used in connection with the United States Bureau of Fisheries' Experimental Farm.

One Cabin Cruiser, 27 feet long, 40 HP Gray Engine, (Beaufort County).

One Cabin Cruiser, 39 feet long, 40 HP Lathrop Engine, (Charleston County).

One Cabin Cruiser, 26 feet long, 40 HP Gray Engine, (Georgetown County).

One Gibbs Sea Skiff, 14 feet long, 9 8/10 HP Johnson Sea Horse Motor, (Horry County).

One Thompson TVT Sea Model, 14 feet long, 22 HP Johnson Motor, (Beaufort County).

One 16 foot oyster boat, 5 HP Johnson Sea Horse Motor, (Jasper County).

One Motor, 5 HP Johnson Sea Horse and One Bateau, (Clarendon County).

## SUBJECT NUMBER FIFTEEN

### RECOMMENDATIONS TO THE GENERAL ASSEMBLY

1. We recommend that the General Assembly pass an act giving the South Carolina State Board of Fisheries the authority to declare a closed season or to shorten the established season for fishing in any area located in the coastal section of South Carolina when in its discretion such change might be beneficial to the State.

2. We recommend that the General Assembly pass an act changing the open fishing season on shad from January 16th, to March 25th, below the 40 mile limit, and to April 30th, above the 40 mile limit, to from February 1st to March 25th, and that this act be made to apply to the entire State. This would mean that the closed season on shad fish would be effective in all of the waters of the State of South Carolina at the same time and would add greatly to simplifying the enforcement of the law, as well as allowing shad to spawn properly in our waters, and would not be destroying the shad during the spawning season.

The present law requires that shad nets be placed not closer than 200 yards apart, and we suggest that this law be changed so as to prohibit the nets from being placed closer than 400 yards apart. By the passage of this law a reduction in the number of fishermen will take place with the result that fewer shad will be caught at present which will give the shad more opportunity to restock our streams, and this, in turn, will mean that in future years the number of shad will be increased generally in the waters of our State.

3. We recommend that an act be passed giving the Board of Fisheries the authority to employ all district or assistant inspectors, and to terminate their services when their duties are not performed properly, or when their services are no longer necessary. It is impossible to obtain the maximum efficiency from men over whom one has not the power to remove for non-performance of duty.

4. We request that a law be enacted limiting the size of crabs taken to not less than 5 inches, and providing a fine of not less than \$25.00 or 30 days' imprisonment for the violation of this act.

5. We recommend that a law be passed placing a tax of 5c per bushel on all oyster shell found in the possession of anyone



and not planted back on the oyster bottoms of this State. Also, that a proper proviso be made for a sufficient penalty to be placed on anyone violating this act.

6. We request that the price of swimming-fish licenses for residents of South Carolina be increased from \$2.50 to \$3.50, and that for non-residents of this State the swimming-fish license be \$5.00.

The swimming-fish license allows the person purchasing same to fish for all salt water fish for market, with the exception of sturgeon.

7. We definitely request that a law be passed placing a tax of 5c per gallon on all raw oysters shipped in to South Carolina, and that a tax of 2c be placed on each 60 oz. of canned oysters shipped in to South Carolina. These are the present taxes on South Carolina oysters, and it is only fair to South Carolina producers that this law be passed so that the tax may bear equally on the imported oysters, otherwise, our local operators are doing business under a disadvantage and giving an advantage to the out-of-state operators.

8. We recommend that a law be enacted giving authority to the State Board of Fisheries to issue a general canner's license, and that the price of this license be \$25.00 per year. We have some large cannerys in this State canning hundreds of cases of oysters and shrimp who are paying at present only \$1.00 per year for a canner's license, which is out of all reason considering the volume of business done.

9. We request that an act be passed placing a license of \$4.50 on each barge or lighter, used in gathering oysters, of less than five tons, and that a license of \$15.00 be placed on each barge or lighter, used in gathering oysters, of five tons and over. Also, that a license of \$1.50 be placed on each bateau used in the gathering of oysters.

10. That a law be enacted increasing the following licenses: Raw oyster-in-shell shippers, from \$1.00 to \$5.00; Raw oyster shucking shed, from \$1.00 to \$10.00.

11. We recommend that an act be passed requiring a license on all drag or haul seines as follows:

On all drag or haul seines, up to and including 100 yards, the sum of \$2.50; on all drag or haul seines, of a length of over 100

yards, and not exceeding 200 yards, the sum of \$7.50; on all drag or haul seines, running over 200 yards, the sum of \$15.00.

We further suggest that for any violation of this law a penalty of not less than \$50.00 fine or 30 days' imprisonment be imposed.

12. We suggest that Code Section 3343 be clarified so as to remove any doubt as to whether the planting of the required amount of shell is per acre or per lease.

All of which is respectfully submitted.

J. M. WITSELL, *Chairman*,  
W. B. RYAN, JR., M. D.,  
W. P. LEWIS.

Attest:

D. H. GADSDEN, *Secretary*,  
Charleston, S. C., June 30, 1941.



## SUBJECT NUMBER SIXTEEN

### APPROPRIATION AND EXPENDITURES—FISCAL YEAR JULY 1st, 1940 - JUNE 30th, 1941

Appropriation for fiscal year July 1st, 1940-June 30th, 1941 .....		\$25,795.00
Amount of appropriation spent during this period .....	\$23,284.94	
Amount of appropriation not spent ....	2,510.06	25,795.00
		<hr/>
Receipts: July 1st, 1940-June 30th, 1941		\$22,783.74

## VOLUME OF BUSINESS

### Fiscal Year July 1st, 1940 - June 30th, 1941

Shrimp caught (pounds) gross, heads on .....	1,312,731
Shrimp (pounds) yield, heads off .....	779,123
Oysters in shell (bushel) .....	623,928
Oysters, raw shucked (gallons) yield .....	37,853
Oysters, canned (ozs.) yield .....	33,416,138
Shad, white .....	20,053
Shad, hickory .....	2,558
Terrapin (number caught) .....	4,230
Terrapin (number shipped) .....	1,088
Oyster shell planted (bushels) .....	1,342,287
Seed oysters planted (bushels) .....	18,147
Sturgeon (number caught, 785) or ..... pounds	25,588
Oyster land under lease (acres) .....	4,685.54
Clams (bushels) .....	450
Crab meat (pounds) .....	341,434
Soft shell crabs (doz.) .....	1,921
Caviar (pounds) .....	61½
Menhaden (number of fish) .....	10,650,000



